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Finck

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(54) **MODULAR FUEL STORAGE SYSTEM**

(71) Applicant: **James W Finck**, Clarkston, MI (US)

(72) Inventor: **James W Finck**, Clarkston, MI (US)

(73) Assignee: **FCA US LLC**, Auburn Hills, MI (US)

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B60K 15/063	(2006.01)
B60K 15/03	(2006.01)
B60K 15/07	(2006.01)
B62D 25/20	(2006.01)

(52) **U.S. Cl.**

CPC ***B60K 15/063*** (2013.01); ***B60K 15/03006*** (2013.01); ***B60K 15/07*** (2013.01); *B60K 15/00* (2013.01); *B60K 15/03* (2013.01); *B60K 2015/03026* (2013.01); *B60K 2015/0631* (2013.01); *B60K 2015/0633* (2013.01); *B62D 25/20* (2013.01)

(58) **Field of Classification Search**

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See application file for complete search history.

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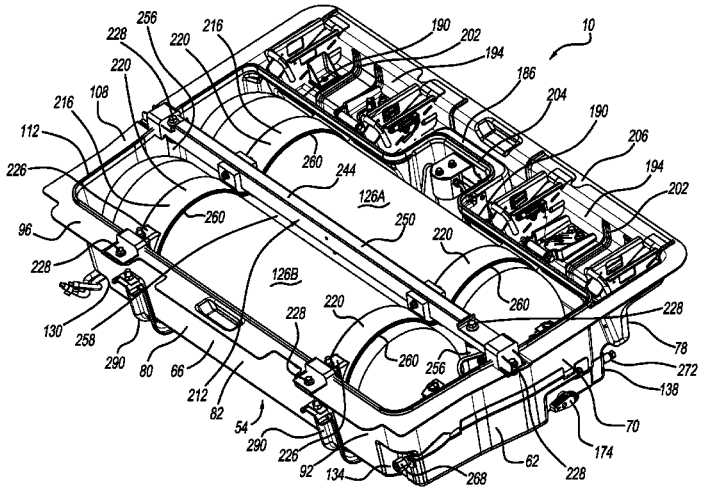
Primary Examiner — Joseph Rocca
Assistant Examiner — Daniel Yeagley
(74) *Attorney, Agent, or Firm* — Ralph E. Smith

(57) **ABSTRACT**

A modular fuel storage system can include a container, a cover, a storage tank and fuel fill and delivery lines. The container can define an interior space therein and the cover can be configured to engage the container to enclose the interior space. The storage tank can be configured to store and selectively deliver a gaseous fuel. The fuel fill and fuel delivery lines can each be fluidly connected to the storage tank. The fill and delivery lines can each have a coupling connector extending external to the container and terminating in a recess formed in an exterior of the container. The modular fuel storage system can be configured to be assembled in the vehicle such that the cover forms a portion of a floor of the vehicle.

18 Claims, 7 Drawing Sheets



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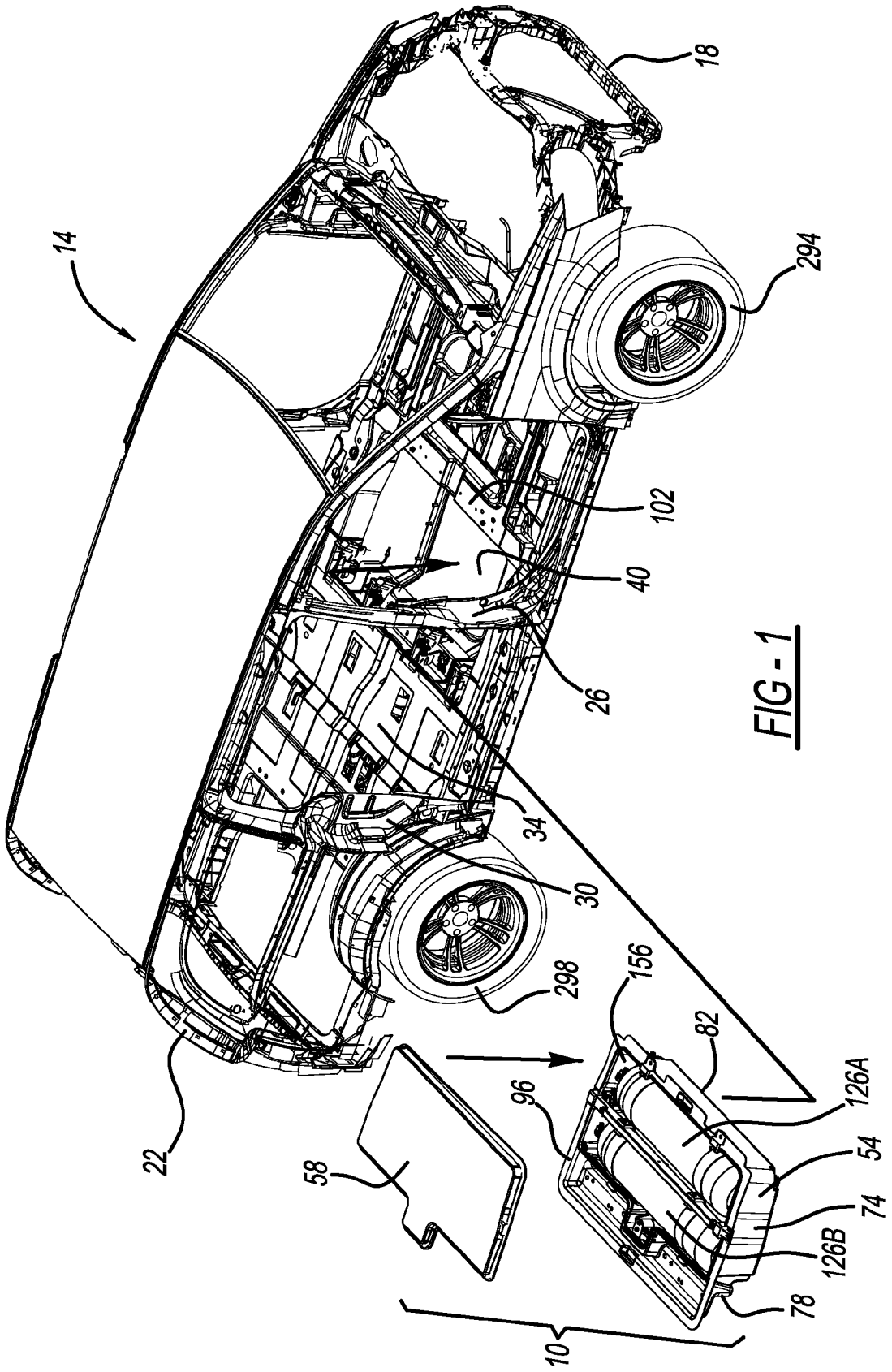

FIG - 1

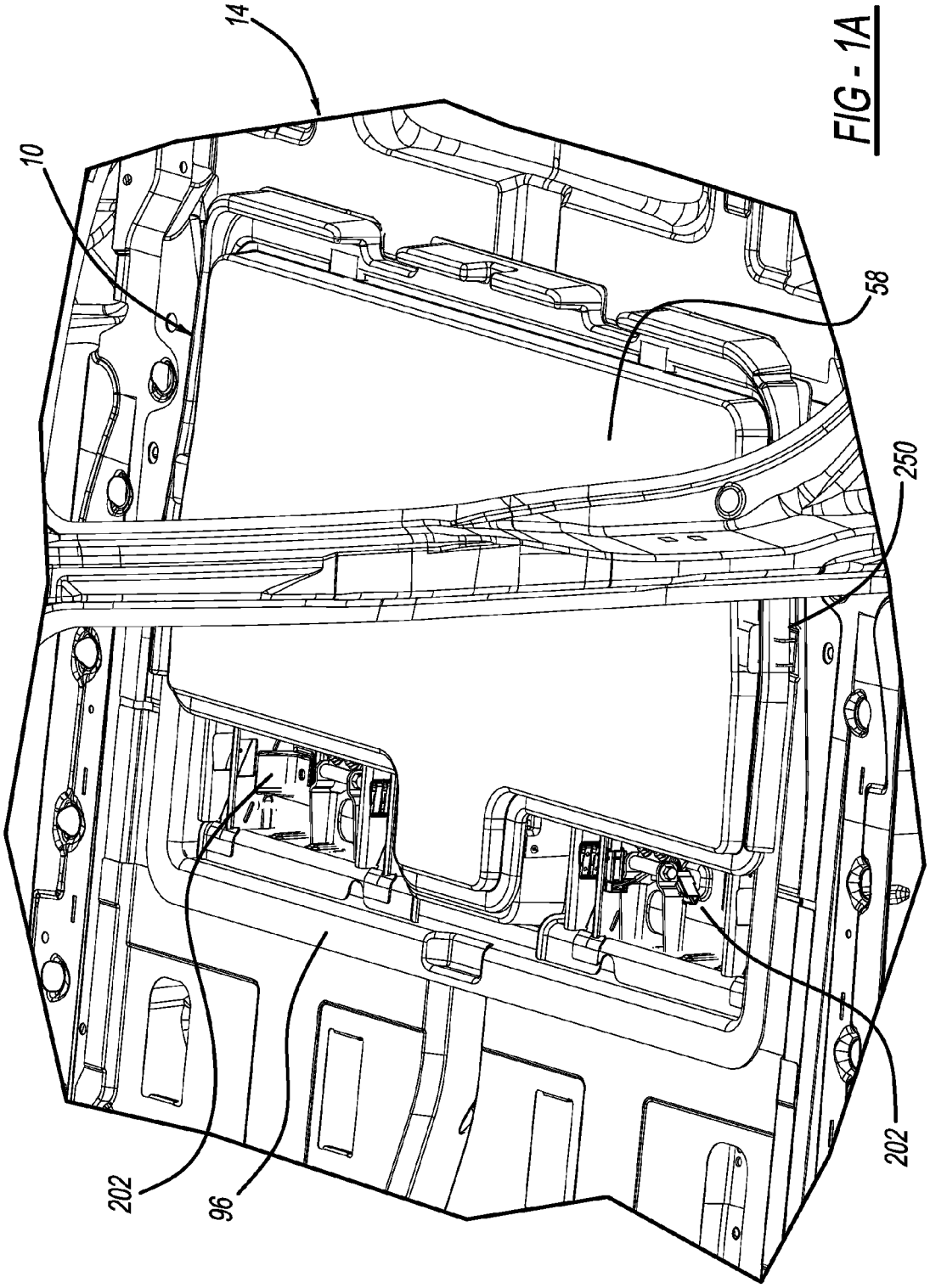

FIG - 1A

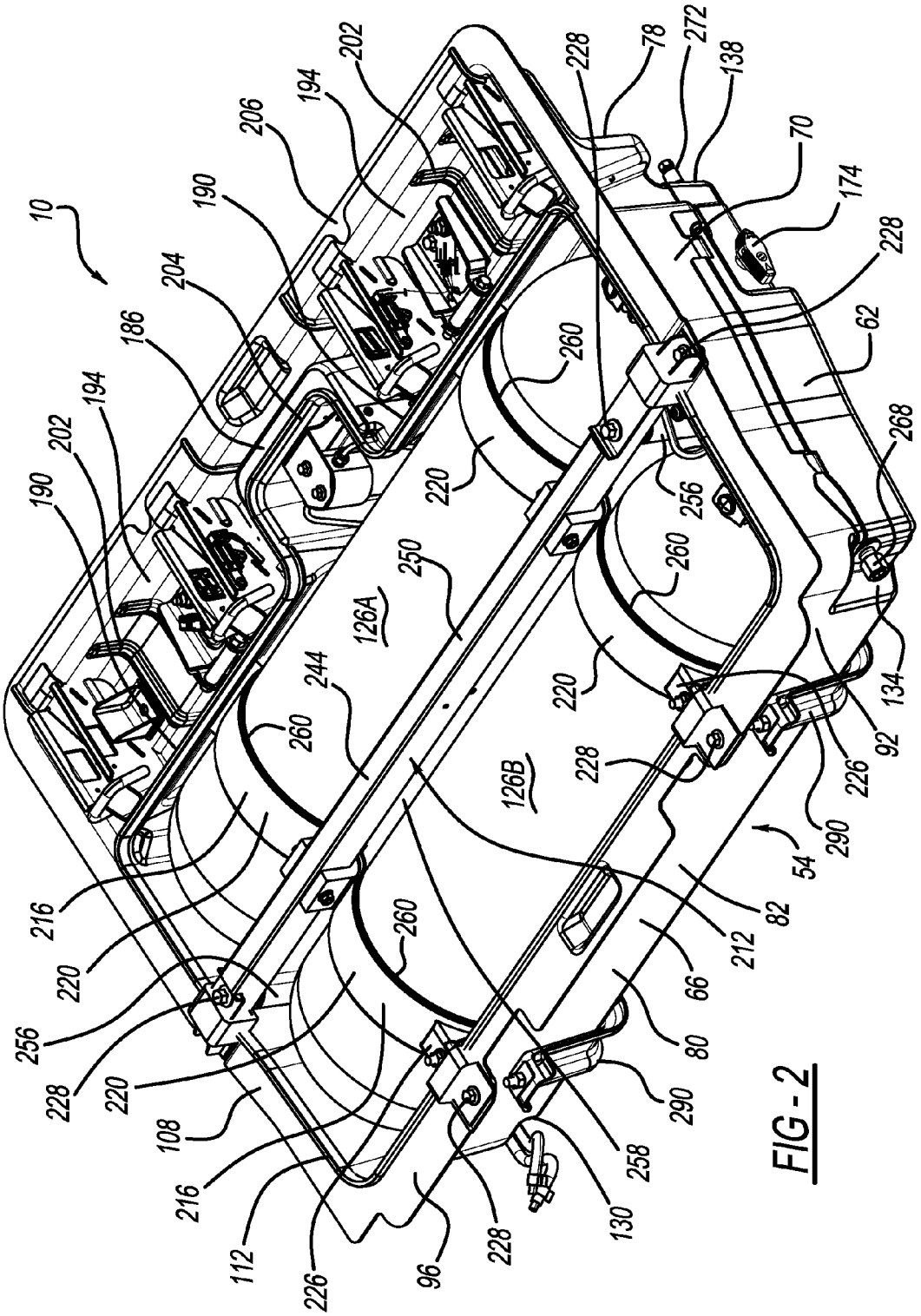
10
190
202
194
206
204
186
190
202
194
216
220
256
228
220
108
216
112
226
96
228
130
258
290
80
66
212
82
54
290
226
92
134
268
62
228
174
70
272
78
228
220
260
256
260
220
250
126A
244
260
126B
228
220
260

FIG - 2

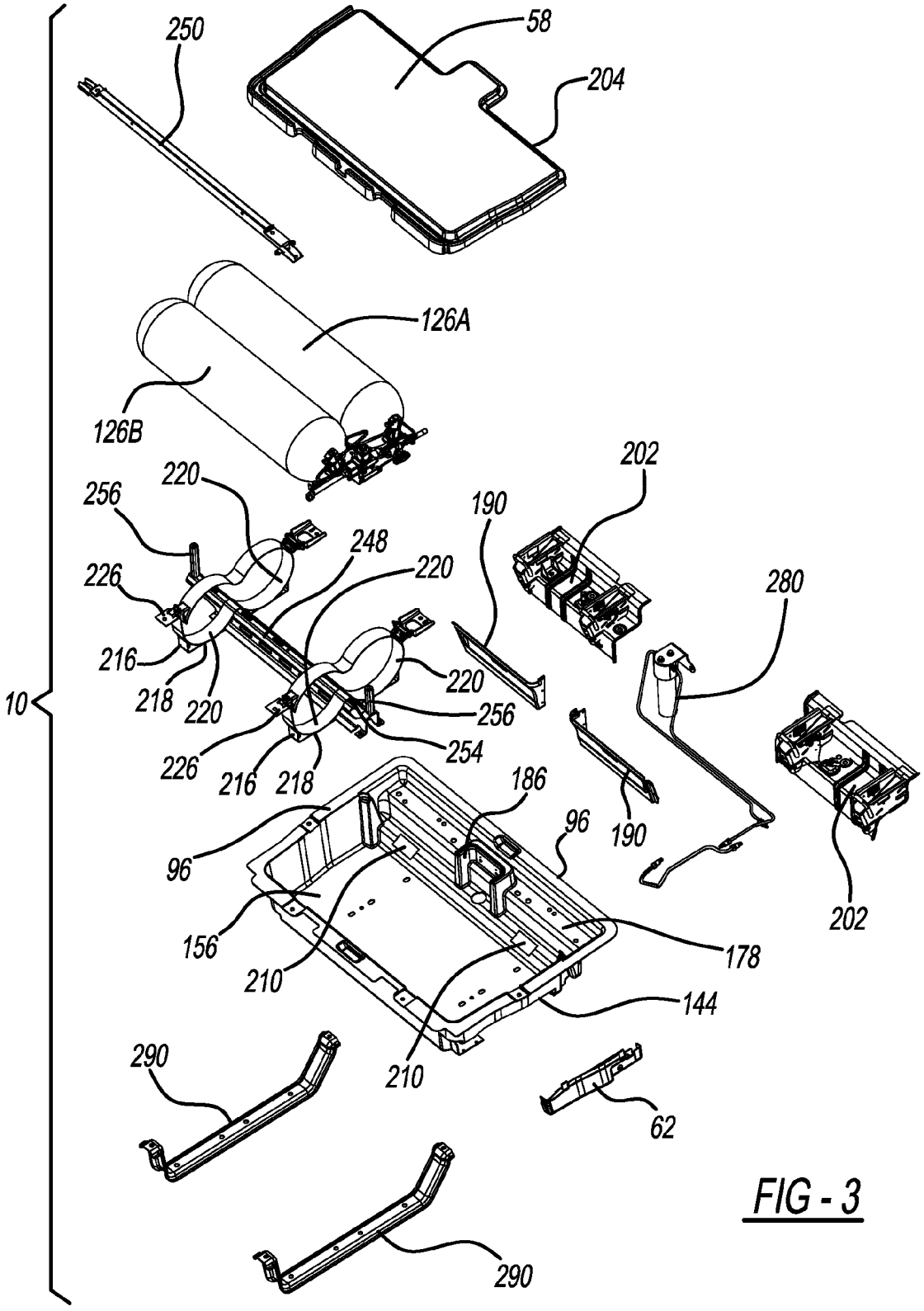
250
58
204
126A
126B
202
220
256
190
248
220
280
226
216
218
220
220
256
254
226
216
218
186
96
190
96
156
210
178
144
210
290
62
290
10

FIG - 3

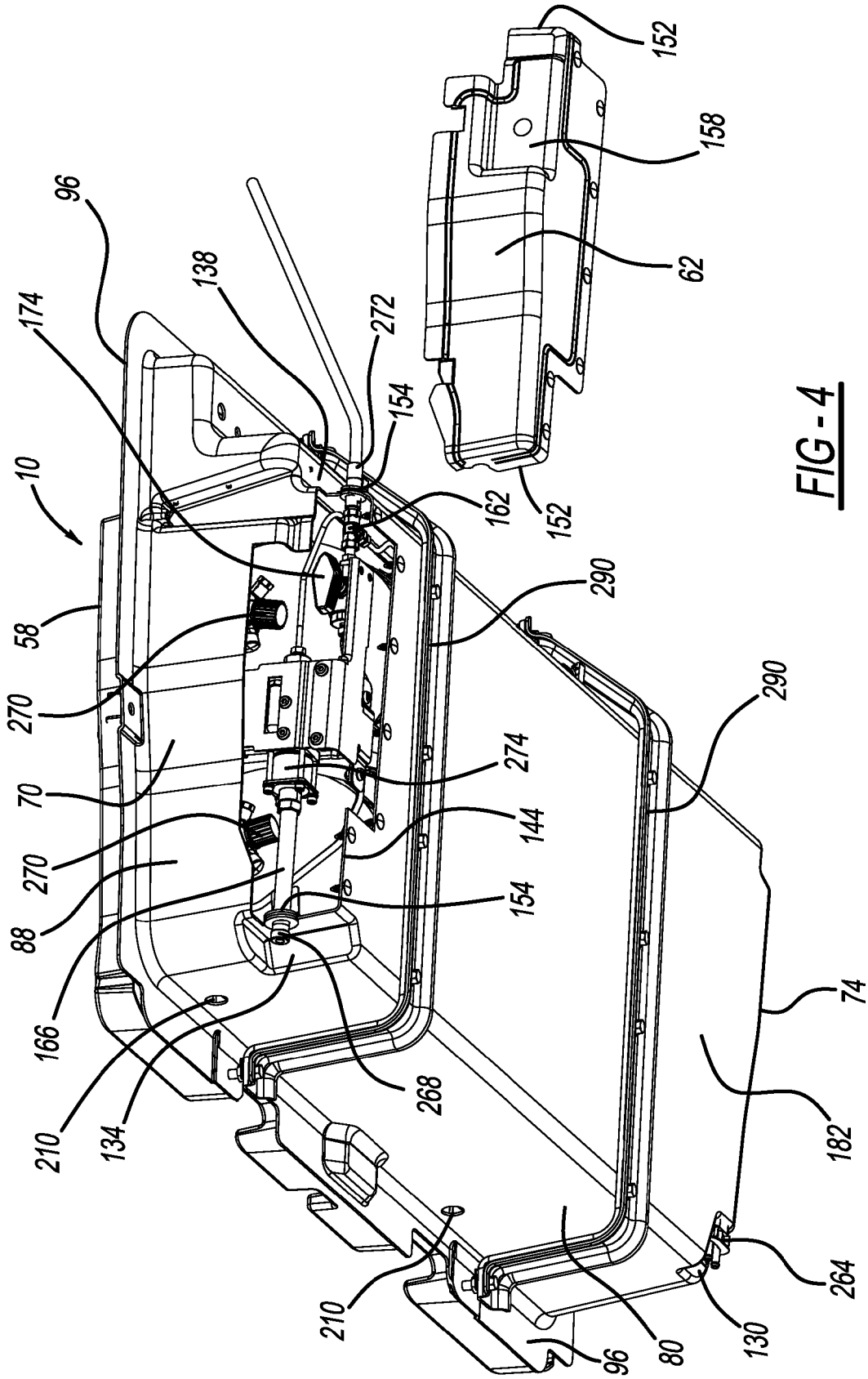
152
158
62
96
138
272
174
154
10
162
152
290
58
270
290
274
70
144
270
154
88
166
210
134
268
74
182
264
210
96
80
130

FIG - 4

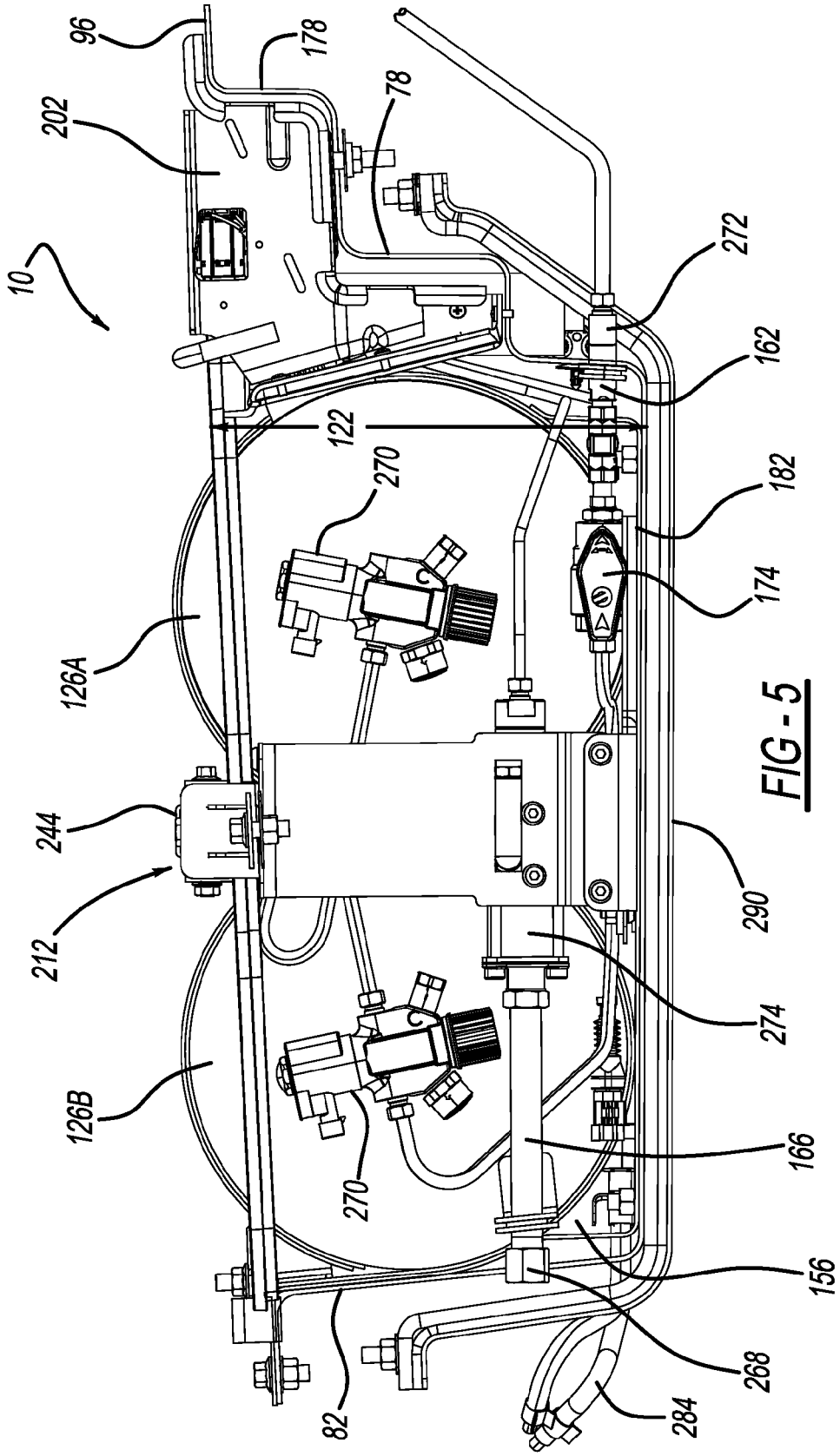
96
178
78
202
10
272
162
122
270
182
174
126A
244
212
290
274
126B
166
270
156
268
82
284

FIG - 5

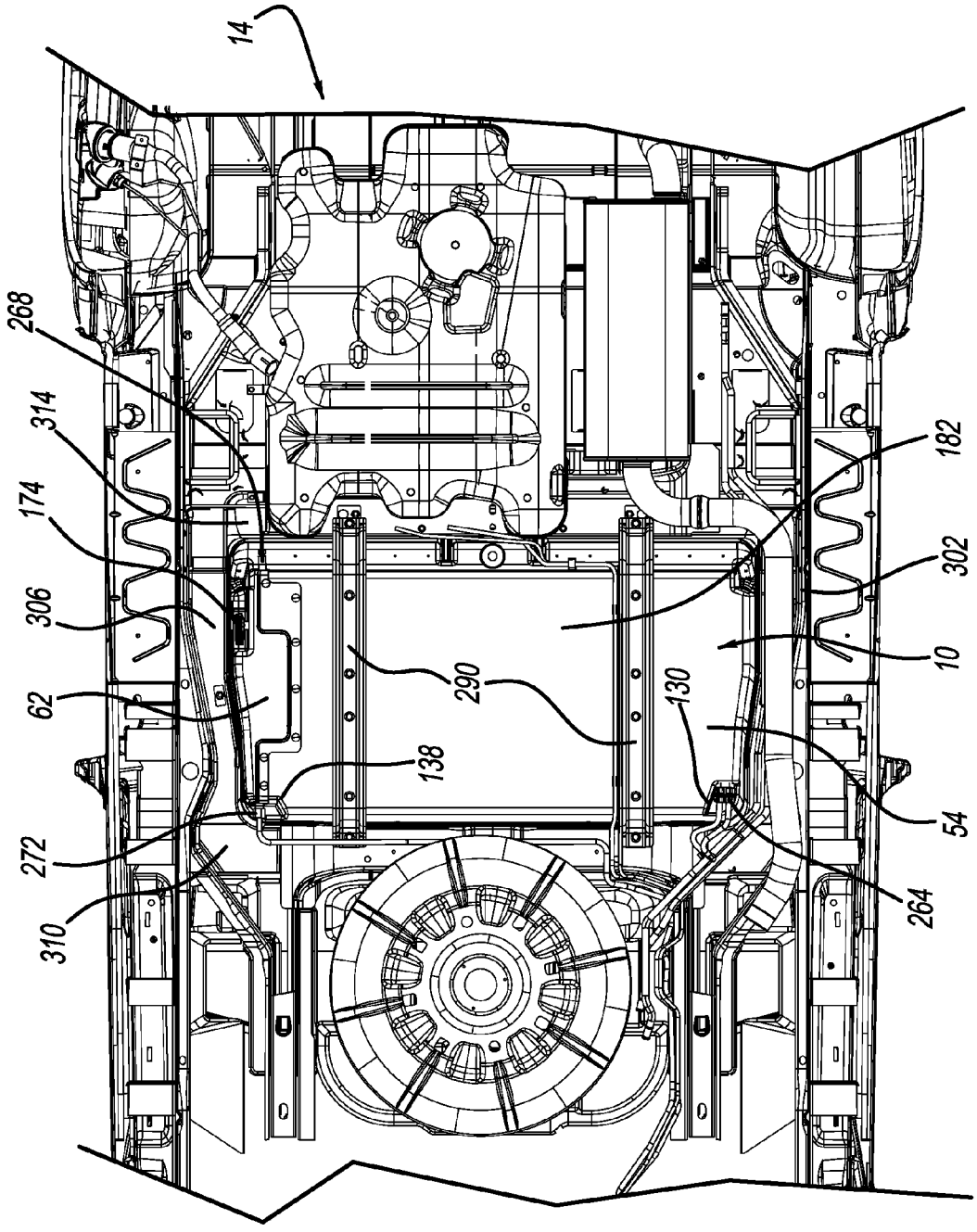

FIG - 6

MODULAR FUEL STORAGE SYSTEM

FIELD

The present disclosure relates generally to a fuel storage system and, more particularly, to a modular fuel storage system for a vehicle.

BACKGROUND

The use of gaseous fuels, such as hydrogen or compressed natural gas, for vehicles is generally known. Such fuels can represent an alternative to petroleum as a fuel source for motor vehicles, but are generally required to be stored at an elevated or high pressure in a storage tank. Typical storage tanks and their associated mounting systems for compressed gaseous fuels include various components that can raise the cost and complexity of manufacturing an alternative fuel vehicle. In addition, such storage tank systems often result in a loss of interior cabin volume or trunk volume in an automotive vehicle. Thus, there remains a need in the relevant art for a modular fuel storage system that overcomes the aforementioned and other disadvantages.

SUMMARY

In one form, a modular fuel storage system for a vehicle is provided in accordance with the teachings of the present disclosure. The modular fuel storage system can include a container, a cover, a storage tank and fuel fill and delivery lines. The container can define an interior space therein and the cover can be configured to engage the container to enclose the interior space. The storage tank can be configured to store and selectively deliver a gaseous fuel. The fuel fill and fuel delivery lines can each be fluidly connected to the storage tank. The fill and delivery lines can each have a coupling connector extending external to the container and terminating in a recess formed in an exterior of the container. The modular fuel storage system can be configured to be assembled in the vehicle such that the cover forms a portion of a floor of the vehicle.

In another form, a vehicle is provided in accordance with the teachings of the present disclosure. The vehicle can include a modular fuel storage system having a container, a cover, first and second storage tanks, fuel fill and delivery lines and an access door. The container can define an interior space therein and the cover can be configured to engage the container to enclose the interior space. The first and second storage tanks can each be configured to store and selectively deliver a gaseous fuel. The fuel fill and delivery lines can each be fluidly connected to the first and second storage tanks. The fuel fill and delivery lines can each have a coupling connector extending external to the container and terminating in a recess formed in an exterior of the container. The access door can be formed in at least a sidewall of the container, and can be removably coupled to the container. An aperture can be formed in a floor of the vehicle and can be positioned between longitudinally extending frame rails of the vehicle and front and rear wheels of the vehicle. The modular fuel storage system can be configured to be positioned in the aperture and fixed to the vehicle such that the cover forms a portion of the floor of the vehicle. The access door can be accessible from an underside of the vehicle to provide access to control features of the storage tanks while the cover remains engaged to the container.

Further areas of applicability of the teachings of the present disclosure will become apparent from the detailed description, claims and the drawings provided hereinafter, wherein like reference numerals refer to like features throughout the several views of the drawings. It should be understood that the detailed description, including disclosed embodiments and drawings referenced therein, are merely exemplary in nature intended for purposes of illustration only and are not intended to limit the scope of the present disclosure, its application or uses. Thus, variations that do not depart from the gist of the present disclosure are intended to be within the scope of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a partial perspective view of an exemplary modular fuel storage and delivery system shown in association with an exemplary vehicle according to the principles of the present disclosure;

FIG. **1A** is a partial perspective view of the exemplary modular fuel storage and delivery system of FIG. **1** positioned in the exemplary vehicle according to the principles of the present disclosure;

FIG. **2** is a partial top perspective view of the exemplary modular fuel storage and delivery system of FIG. **1** with a load floor cover removed for clarity of illustration according to the principles of the present disclosure;

FIG. **3** is an exploded view of the exemplary modular fuel storage and delivery system of FIG. **1** according to the principles of the present disclosure;

FIG. **4** is a partial bottom perspective view of the exemplary modular fuel storage and delivery system of FIG. **1** with a side access door removed for clarity of illustration according to the principles of the present disclosure;

FIG. **5** is a partial side view of the exemplary modular fuel storage and delivery system of FIG. **1** with the cover removed and a portion of a container cut away according to the principles of the present disclosure; and

FIG. **6** is a partial bottom view of the exemplary modular storage and delivery system positioned in the exemplary vehicle according to the principles of the present disclosure.

DETAILED DESCRIPTION

With initial reference to FIG. **1**, an exemplary modular fuel storage system **10** for storage and delivery of a compressed or high pressure gaseous fuel is shown in association with an exemplary vehicle **14** in accordance with the present teachings. In one exemplary configuration, the gaseous fuel can be compressed natural gas. It will be appreciated, however, that various other gaseous fuels can be utilized with the modular fuel storage system **10**, such as propane or hydrogen.

In the exemplary configuration illustrated, vehicle **14** is a motor vehicle, such as a minivan, and can include a forward end **18**, a rearward end **22**, a first door opening **26**, a second door opening **30**, and a floor **34**. In this exemplary configuration, the second door opening **30** can be associated with a second row of seating (not specifically shown) in the minivan, and an aperture **40** can be formed in the floor for receipt of the modular fuel storage system **10**, as will be discussed in greater detail below. It should be appreciated that while the discussion will continue with reference to vehicle **14** being a minivan, the modular fuel storage system **10** can be associated with various different vehicle configurations and models.

In one exemplary configuration, the modular storage system **10** can be positioned in a central location of the vehicle and, when utilized in a minivan, can optionally take the place of stowage tubs typically associated with a collapsible second

row of seating. It should be appreciated, however, that the modular storage system **10** can also be positioned at a rearward area of the vehicle. The modular fuel storage system **10** can be received in a manufacturing plant as a pre-certified assembly ready to be positioned in the vehicle thereby eliminating a need for installing various individual components associated with modular storage system **10**. The modular storage system **10** can also be sealed relative to an interior of the vehicle with a sealable cover that forms a portion of the floor **34** of vehicle **14**, as will be discussed in greater detail below.

With additional reference to FIGS. **2-6**, modular storage system **10** can include a container or tub **54**, a cover **58** and an access door **62**, as generally shown in FIGS. **2-4**. Container **54** can be configured to receive one or more storage tanks, as generally shown in FIGS. **1-5**. In the exemplary configuration illustrated, container **54** can be configured to house two storage tanks, each being of a different size, as will be discussed in greater detail below. Container **54** can include a generally rectangular shape **66** having a longer lateral width than length, where the lateral width can correspond to a cross-car direction, as generally shown in FIGS. **1** and **1**A. In this regard, container **54** can include first and second opposed walls or sides **70**, **74** (FIGS. **1** and **2**) and third and fourth opposed walls or sides **78**, **82**.

The container **54** can include an outer perimeter **88** sized to be received in and pass through the aperture **40** of floor **34**, as generally shown in FIG. **1** with reference to FIG. **6**. An upper area or end **92** of container **54** can include a flange **96** extending beyond perimeter **88** and configured to engage a portion of an upper side **102** of floor **34** adjacent aperture **40** when container **54** is positioned therein. A lower side of flange **96** can be sealingly engaged to vehicle floor **34** when container **54** is installed in aperture **40**. In one exemplary configuration, the lower side of flange **96** can be glued to the upper side **102** of floor **34** to sealingly secure container **54** thereto. An upper side **108** of flange **96** can also receive a seal **112** associated with container **54** and/or cover **58** to seal cover **58** to container **54**.

Container **54** can include a greater height or depth **122** adjacent third side **78** as compared to fourth side **82** so as to facilitate housing storage tanks of different sizes, as generally shown in FIG. **5** where storage tank **126**A positioned relative to third side **78** has a larger diameter than storage tank **126**B positioned relative to fourth side **82**. A plurality of depressions or recessed areas **130**, **134**, **138** can be formed in the exterior of container **54** for facilitating external access to fuel line and coolant line connections, as will be discussed in greater detail below.

An access aperture **144** can be formed in a side of container **54**, such as the first side **70** shown in FIG. **4**, to facilitate access to operating and control features of the storage tanks **126**A, **126**B while the modular fuel storage system is assembled to vehicle **14**. In this regard, access aperture **144** in connection with removable access door **62** can provide selective access to the operating and control features of tanks **126**A, **126**B without having to remove cover **58**. In one exemplary configuration, access door **62** can form a sealed connection to container **54** when coupled thereto.

In one exemplary configuration, the access aperture **144** can be formed so as to extend from third side **78** to fourth side **82** and intersect with each of the respective recessed areas **134**, **138**, as shown for example in FIG. **4**. Access door **62** can be sized and shaped to cover aperture **144** and conform to a portion of outer perimeter **88** adjacent aperture **144**, as generally shown in FIG. **4** with reference to FIG. **2**. In the exemplary configuration illustrated, opposed ends **152** of access door **62** can form part of recessed areas **134**, **138** and can engage seals **154** to seal connections to feed and supply lines **162**, **166** that extend from an inside or interior **156** of container **54** into the recessed areas **134**, **138**. The access door **62** can also include a recessed area **158** sized and shaped to provide access to a shut-off valve **174** without having to remove access door **62**, as generally shown in FIG. **2** with reference to FIG. **4**.

The container **54** can also include a stepped configuration **178** extending generally from the flange **96** along the third side **78** at least partially toward a floor or bottom **182** of container **54**. An intermediate member **186** can extend upward from the stepped configuration **178** so as to be flush or substantially flush with a plane encompassing flange **96**, as generally shown in FIG. **2**. Intermediate member **186** can serve as a structural member to support a portion of seal **112** as well as a pair of bulkheads **190** that can optionally be positioned between intermediate member **186** and respective sides **70**, **74**. A pair of stepped areas **194** can be formed by the bulkheads **190**, intermediate member **186** and associated sides of the container, as also shown in FIG. **2**. These stepped areas **194** can receive optionally integrated seat mounting brackets **202**, as can be seen in FIGS. **2** and **3**.

It should be appreciated that modular fuel storage system **10** can include container **54** with or without the bulkheads **190**, intermediate member **186** and seat mounting brackets **202**. In a configuration including seat mounting brackets **202**, seal **112** and cover **58** can follow a perimeter **204** established by the sides **70**, **74**, **82**, the bulkheads **190** and the intermediate member **186**, thereby providing access to the seat mounting brackets **202** while sealing an interior of container **54** within perimeter **204**. In a configuration that does not include optional seat mounting brackets **202**, cover **58** and seal **112** can align with perimeter **204** or, alternatively can align with a perimeter **206** (FIG. **2**) established by flange **96**. In the latter scenario, the bulkheads **190**, intermediate member **186** and seat mounting brackets **202** can optionally not be included with the modular fuel storage system **10**.

As briefly discussed above, container **54** can house one or more compressed or high pressure storage tanks, such as tanks **126**A and **126**B. In the exemplary configuration illustrated, two cylindrical tanks **126**A and **126**B can be housed in the interior **156** of container **54** with one of the tanks, **126**A, including a larger diameter than tank **126**B. It will be appreciated, however, that a single tank or multiple tanks of the same or varying widths or diameters can be utilized with container **54**. In the exemplary configuration illustrated, tanks **126**A and **126**B can be positioned contiguous to each other and can extend along a longitudinal length of container **54**, which when positioned in vehicle **14**, can extend cross-vehicle or substantially perpendicular to a longitudinal axis of vehicle **14**.

As container **54** can be sealed relative to the interior of the vehicle when cover **58** is removably secured thereto, one or more flapper or check valves or vents **210** can be provided in one of the sides **70**, **74**, **78**, **82** of container **54**. In one exemplary configuration illustrated in FIG. **3**, valves/vents **210** can be positioned in side **78**, which is orientated facing rearward when installed in vehicle **14**. This rearward facing orientation can shield or substantially shield valve **210** from road debris and the like during operation of vehicle **14**. It should be appreciated, however, that the valves/vents can also be positioned in container **54** such that they are forward or side facing when storage system **10** is installed in vehicle **14**.

Tanks **126**A, **126**B can include a retainer assembly **212** configured to support and maintain a predetermined position of tanks **126**A, **126**B in the interior **156** of container **54** and

relative to the vehicle **14**. Retainer assembly **212** can include one or more tank strap sets **216** each having a housing **218** with one or more ring-shaped portions **220** sized and shaped to correspond to the width and exterior shape of tanks **126**A, **126**B, as generally shown in FIG. **3**. Each tank strap set **216** can include a first member **226**. The first member **226** can extend from a side of housing **218** and can be configured to be secured to the vehicle **14** adjacent aperture **40** with fasteners **228**. In one exemplary configuration, the first member **226** can be secured to vehicle **14** to thereby removably secure tanks **126**A, **126**B thereto, as generally shown in FIG. **2** with reference to FIGS. **1** and **1**A. In this exemplary configuration, the retainer assembly **212** can secure the tanks **126**A, **126**B to the vehicle **14** independent of the container **54**.

In the exemplary configuration illustrated, retainer assembly **212** can include a pair of tank strap sets **216** each having two ring-shaped portions **220** for engagement with tanks **126**A, **126**B, as shown for example in FIGS. **2** and **3**. A retention and handle assembly **244** can be integrally formed with or coupled to retainer assembly **212**, as generally show in FIGS. **2** and **3**. Retention and handle assembly **244** can include a lower portion **248** and an upper portion **250**. The lower portion **248** can be positioned in a lower space **254** formed between ring-shaped portions **220** such that the lower portion **248** extends substantially along a longitudinal length of tanks **126**A, **126**B and connects to each tank strap set **216**. In the exemplary configuration illustrated, each tank strap set **216** is positioned relative to opposed ends of tanks **126**A, **126**B, as shown for example in FIG. **2**.

The lower portion **248** can be connected at each end thereof to upper portion **250** via a shoulder bar **256**, as shown for example in FIG. **3**. Upper portion **250** can extend, in one exemplary configuration, along an upper space **258** between tanks **126**A, **126**B from the first side **70** to the second side **74**, as generally shown in FIG. **2**. Tightening the upper portion **250** to the shoulder bar **256** can force the ring shaped portions **220** of tank strap sets **216** downward in space **258** thereby tightening tank strap sets **216** around tanks **126**A, **126**B. In one exemplary configuration, ring-shaped portions **220** can include a rubber liner **260** on an inside thereof configured to engage tanks **126**A, **126**B when secured thereto, as shown for example in FIG. **3**. Upper portion **250** can thus include a longer longitudinal length than lower portion **248** and can be secured to vehicle **14** at its opposed ends, as also shown in FIG. **2** with reference to FIG. **1**A. In operation, retention and handle assembly **244** can both serve as a structure to secure tanks **126**A, **126**B to each other and to vehicle **14** (e.g., floor **34**) via fasteners **228**, as well as a mechanism for carrying tanks **126**A, **126**B to and from container **54**. For example, once the relevant portions of handle assembly **244** are unsecured from vehicle **14** and container **54** (along with first members **226**), the upper portion **250** of retention and handle assembly **244** can be grasped to lift and remove tanks **126**A, **126**B from container **54** and vehicle **14**. Tanks **126**A, **126**B can then be carried while being coupled to each other via assembly **244**.

With particular reference to FIG. **5** and continuing reference to FIGS. **1**-**4** and **6**, tanks **126**A, **126**B can each include a valve **270** operably connected to a pressure regulator **274**. Pressure regulator **274** can be fluidly coupled to both valves **270** along with the feed and supply lines **162**, **166** and a filter system **280**, as generally shown in FIG. **5** with reference to FIG. **3**. Coolant lines **284** can be coupled to the pressure regulator **274** and can be operable to control a temperature of the pressure regulator **274** and associated control components as a result of pressure changes during operation or use of compressed natural gas stored in tanks **126**A, **126**B.

With particular reference to FIGS. **2** and **4**, the recessed areas **130**, **134** and **138** can be sized and shaped so as to extend beyond the respective coolant lines **284** external connection **264**, supply line **166** external connection **268**, and fill line **162** external connection **272**. This feature can, among other things, serve to protect the external connections **264**, **268**, **272** during transport, vehicle assembly and operation or modular fuel storage system **10**. The modular fuel storage system **10** can be configured as a pre-certified, drop-in modular assembly for its associated vehicle. Necessary connections to vehicle **14** can be accomplished via the external connection capability of container **54** (e.g., external connections **264**, **268** and **272**). In the exemplary configuration illustrated, external connections **264**, **268** and **272** can be quick-connections for ease of manufacturability and/or serviceability.

With particular reference to FIGS. **2**, **4** and **6**, modular fuel storage system **10** can include one or more skid plate support straps **290**. Straps **290** can be sized and shaped to conform to an outer shape of container **54** so as to engage at least a portion of sides **78** and **82** and bottom **182**. In the exemplary configuration illustrated, modular fuel storage system **10** can include two straps that extend along bottom **182** and sides **78**, **82** so as to be secured to an underside of floor **34** (or adjacent chassis/frame component), as generally shown in FIG. **4** with reference to FIG. **6**. Straps **290** can be structurally designed to not only aid in supporting container **54**, but also serve as check straps or skid plates to protect the container from any potential under-vehicle hazards. For example, straps **290** can prevent or substantially prevent the bottom **182** of container **54** from being dented or pushed inward due to contact with such under-vehicle hazards.

In operation, and with particular reference to FIG. **1**, modular fuel storage system **10** can be assembled to minivan vehicle **14** through the second or rear door opening **30**. The modular system **10** can be positioned in aperture **40** from an upper side **102** of floor **34**, as also shown in FIG. **1**. The flange **96** can be sealed to floor **34** and the cover **58** can be semi-permanently sealed to container **54** so as to seal modular system **10** relative to an inside of the passenger compartment of vehicle **14**, while allowing the interior **156** of container **54** to vent to the atmosphere via vents or valves **210**. As discussed above, cover **58** can form a portion of floor **34** of vehicle **14** when modular system **10** is assembled thereto. In one exemplary configuration, the modular system **10** can be installed in the vehicle as a complete, pre-certified assembly with all necessary connections to vehicle components being accessible and handled external to the interior **156** of container **54**.

The modular fuel storage system **10** can be centrally positioned in vehicle **14** between front and rear axles/wheels **294**, **298**, as generally shown in FIGS. **1** and **6**. In the exemplary configuration illustrated in FIGS. **1** and **6**, the modular system **10** can be positioned between longitudinally extending frame rails **302**, **306** and vehicle cross-members **310**, **314**. In this exemplary configuration, straps **290** can be coupled to cross-members **310**, **314**.

It should be understood that the mixing and matching of features, elements and/or functions between various examples may be expressly contemplated herein so that one skilled in the art would appreciate from the present teachings that features, elements and/or functions of one example may be incorporated into another example as appropriate, unless described otherwise above.

What is claimed is:

1. A modular fuel storage system for a vehicle, comprising:
a container defining an interior space therein, the container including an access aperture and an access door configured to removably engage the container to cover the access aperture when engaged to the container wherein the access door includes a recess configured to receive a shut-off valve extending from the interior space, the shut-off valve terminating within the recess;
a cover configured to engage the container to enclose the interior space;
a storage tank configured to store and selectively deliver a gaseous fuel; and
a fuel fill line and a fuel delivery line each fluidly connected to the storage tank, the fill and delivery lines each having a coupling connector extending external to the container and terminating in a recess formed in an exterior of the container;
wherein the modular fuel storage system is configured to be assembled in the vehicle such that the cover forms a portion of a floor of the vehicle.

2. The modular fuel storage system of claim 1, wherein the container includes sidewalls and a bottom cooperating to define the interior space, and a flange extending from an upper end of the container opposite the bottom.

3. The modular fuel storage system of claim 2, wherein the modular fuel storage system is configured to be positioned in an aperture extending through the floor of the vehicle such that the flange engages a portion of the floor adjacent the aperture and the cover encloses the cavity and forms the portion of the floor.

4. The modular fuel storage system of claim 3, wherein the modular fuel storage system is configured to be positioned in the vehicle between longitudinally extending frame rails and front and rear wheels of the vehicle.

5. The modular fuel storage system of claim 4, wherein the modular fuel storage system is configured to be positioned in the vehicle between cross members extending between the frame rails and between the front and rear wheels.

6. The modular fuel storage system of claim 1, wherein the storage tank includes two storage tanks.

7. The modular fuel storage system of claim 6, further comprising a pressure regulator fluidly coupled to the two storage tanks and housed in the interior space of the container.

8. The modular fuel storage system of claim 7, wherein the interior space is sealed to a passenger compartment of the vehicle.

9. The modular fuel storage system of claim 6, wherein the two storage tanks include two cylindrical storage tanks with one of the tanks including a larger diameter than the other of the tanks.

10. The modular fuel storage system of claim 6, further comprising:
a retainer strap assembly including first and second cylindrical shaped openings configured to engage the respective two storage tanks; and
a longitudinally extending retention member configured to extend substantially between and along a length of the two tanks, the retention member coupled to the strap assembly.

11. The modular fuel storage system of claim 10, wherein the retainer strap assembly includes first and second retainer strap assemblies spaced apart from each other along the length of the two tanks, the first and second retainer strap assemblies removably connected to the vehicle, the retention member connected to the first and second retainer strap assemblies and removably connected to the vehicle, the and first and second opposed sides of the container facing respective ends of the two storage tanks.

12. A modular fuel storage system for a vehicle, comprising:
a container defining an interior space therein;
a cover configured to engage the container to enclose the interior space;
a storage tank configured to store and selectively deliver a gaseous fuel;
a pair of seat brackets positioned in the interior space and fixed to the container; and
a fuel fill line and a fuel delivery line each fluidly connected to the storage tank, the fill and delivery lines each having a coupling connector extending external to the container and terminating in a recess formed in an exterior of the container;
wherein the modular fuel storage system is configured to be assembled in the vehicle such that the cover forms a portion of a floor of the vehicle.

13. The modular fuel storage system of claim 12, wherein the pair of seat brackets includes two pair of seat brackets, and wherein the cover is sized and shaped so as to provide access to the seat brackets while sealing the interior space containing the storage tank relative to the environment.

14. A vehicle comprising:
a modular fuel storage system for a the vehicle, including:
a container defining an interior space therein;
a cover configured to engage the container to enclose the interior space;
a first and a second storage tank each configured to store and selectively deliver a gaseous fuel;
a fuel fill line and a fuel delivery line each fluidly connected to the first and second storage tanks, the fill and delivery lines each having a coupling connector extending external to the container and terminating in a recess formed in an exterior of the container;
an access door formed in at least a sidewall of the container, the access door removably coupled to the container;
an aperture formed in a floor of the vehicle, the aperture positioned between longitudinally extending frame rails of the vehicle and between front and rear wheels of the vehicle;
wherein the modular fuel storage system is configured to be positioned in the aperture and fixed to the vehicle such that the cover forms a portion of the floor of the vehicle, and wherein the access door is accessible from an underside of the vehicle to provide access to control features of the storage tanks while the cover remains engaged to the container.

15. The vehicle of claim 14, wherein the modular fuel storage system comprises a pair of seat brackets positioned in the interior space and fixed to the container.

16. The vehicle of claim 15, wherein the modular fuel storage system comprises a retainer assembly, the retainer assembly coupled to each storage tank and including a retention member positioned between the storage tanks and removably coupled to the vehicle proximate opposed sides of the aperture.

17. The vehicle of claim 15, wherein the interior space of the container is sealed relative to an interior of the vehicle when the cover is engaged to the container.

18. The vehicle of claim 14, wherein the first and second storage tanks include cylindrical storage tanks with one of the first and second storage tanks including a larger diameter than the other of the first and second storage tanks.

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